

162 than in areas adjacent to the outwardly extending ribs 162. The scalloped rib 176 not only serves important venting functions but also together with the outer flange 174 of the cover rim 142 provide features for securing the cover 16 to the base 12 of the container 10.

The cover 16 is adapted for placement over the base 12 to define the food storage chamber 18 in which the food product is housed during storage and transport. The peripheral configuration of the cover 16 is adapted for complementary press-fittable engagement with the rim 26 of the base 12 such that the scalloped rib 176 of the cover 16 is positioned slightly interior to the elongated rib 68 of the base 12. When the cover 16 is pressed onto the base 12, the cover 16 and base 12 will flex slightly and the scalloped rib 176 of the cover 16 will snap into position interior to the elongated rib 68 of the base 12 to latch the cover 16 to the base 12. The cover 16 is held in position against the elongated rib 68 in a friction or interference-fit engagement. When the cover 16 is placed on the base 12 and the container 10 is in a closed position, the outer flange 174 of the cover 16 rests on portions of the elongated rib 68 of the base 12 and the scalloped rib 176 of the cover 16 rests atop the shoulder 66 of the base 12. The shoulder 66 of the base 12 may further be provided with at least one cover anti-deflection protrusion 180 in order to help secure the cover and prevent buckling. The cover 16 may be preferably completely detachable from the base 12 or, alternatively, may be hingely coupled thereto to close or open the food storage chamber 18 as access is needed.

In another embodiment as shown in FIG. 9, to secure the cover 16 to the base 12, the container 10 is provided with a latching structure 190. The preferred latching structure 190 is shown in U.S. Pat. No. 5,046,659 issued to Warburton on Sep. 10, 1991 and in U.S. patent application Ser. No. 09/113,645 filed on Jul. 10, 1998; both are incorporated herein by reference in their entirety. The latching structure 190 is similar to the locking structure 94 described above for locking handle segments 78 together. The latching structure 190 includes four substantially rectangular male ribs 192 formed in the scalloped rib 176 at the comers 152 of the cover 16 as shown in FIG. 9. Substantially rectangular female recesses (not shown) are formed in the base 12 and are positioned and dimensioned to receive the male ribs 192. Each male rib 192 includes a shoulder structure 194 that interlocks with the female recess to latch the cover 16 and base 12 together. A variety of other latching or positioning structures of various shapes are equally possible such as any interference-fit engagement having, for example, a round or polygonal shape. For example, in one embodiment, complementary male and female cone-shaped protrusions (not shown) are formed in the scalloped rib 176 and base 12 to position the cover 16 atop the base 12.

The ribs 192 and recesses of the latching structure 190 can be located anywhere in the base 12 and cover 16. Alternatively, female recesses can be formed in the cover 16 and cooperating male ribs can be opposingly located in the base 12. Any combination, number, or arrangement of male ribs 192 and female recesses as well as locking features are possible without departing from the spirit and scope of the invention.

With the cover 16 and base 12 engaged, the ribs 56 in the cover 16 are substantially vertically aligned with ribs 162 in the base 12. The ribs 56, 162 can also provide interlocking camming surfaces for stacking multiple containers as shown, for example, in U.S. patent application Ser. No. 08/037,353 filed on Mar. 26, 1993 by Jay M. Wiley which is incorporated herein by reference in its entirety.

As shown in FIG. 10, a series of covered containers may be vertically stacked on top of one another in a secure arrangement by inserting the depending channel 32 of the base 12 into the complementary recessed central portion 146 of the top 136. The raised peripheral portion 144 of the top 136 provides camming surfaces for the channel 32 of the bottom 20 and vice versa. A container 10 is easily stacked atop another even with the locked handle segments 78 resting on top of the cover 16 as portions of the handle structure 14 of a lower container 10 are received within the recesses 34 of an upper container 10.

As best seen in FIG. 11, when the cover 16 is in position atop the base 12 of the container 10 a plurality of venting apertures 186 is formed along the interface of the base 12 with the cover 16 where the cover 16 is spaced from the base 12 of the container 10 to form venting apertures 186 that allow for the venting of steam which may emanate from hot foods within the container 10. The venting apertures 186 are generally located between ribs 56, 162 of the cover 16 and the base 12 and are defined by the conjunction of the beveled vent openings 184 of the cover 16 with the venting notches 76 in the base 12. Hence, the multiplicity of intermittent elongated venting apertures 186 extends along the interface of the cover 16 and the base 12.

During normal operation, presence of hot food product 188 in the chamber 18 and possible heating thereof by heat lamps raise the temperature of the air within the chamber 18 and create natural convection air currents therein indicated by arrows shown in FIG. 11. The hot air inside the chamber 18 flows upwardly and out through the fluted openings 166. This air flow through the chamber 18 and out the fluted openings 166 draws cool air into the chamber 18 from the exterior of the container 10 through the venting apertures 186, thereby removing moisture and keeping the air temperature within the chamber 18 below the maximum critical moisture and temperature of the food product.

The design and number of vents 166, 186 can be altered depending on the desired consistency of the food product placed within the chamber 18. If the vents 166, 186 are larger or more numerous, then more moisture will readily escape from the chamber 18. The result of having an ideal number of openings is a food product that is warm enough to eat without having a compromised texture. Greater ventilation will allow the food product such as fried chicken to remain crispier. Less ventilation as a result of closed or fewer vents, reduces the possible escape of vapors creating a condition of maximum heat retention. As a result, moisture emanating from the food product in the form of steam surrounds the food product and may render the food product too soggy. The number of fluted openings 166 can be customized according to the food carried by the container 10. Adequate venting is provided when the containers 10 are stacked one on top of another without the upper container blocking the vent openings of the one below.

Each of these embodiments and obvious variations thereof is contemplated as falling within the spirit and scope of the claimed invention, which is set forth in the following claims.

What is claimed is:

1. A base for a thermoplastic container, comprising:  
a bottom;  
a pair of opposing side walls and a pair of opposing end walls, said side walls and said end walls extending upward from said bottom, said end walls extending between said side walls; and  
a rim encompassing an upper edge of said side walls and said end walls and extending laterally outwardly

therefrom, said bottom having a plurality of depending wells sufficiently small to retain a volume of liquid in each of said wells via capillary action or surface tension forces such that said volume of liquid therein does not flow out when said base is tilted or turned upside-down, each of said wells having an interior surface area, said container having a ratio of the capacity for said volume of liquid to said interior surface area in the range of approximately  $2.8 \times 10^{-2}$  in to  $3.8 \times 10^{-3}$  in.

2. The container of claim 1, wherein said wells for retaining liquid retain a volume of liquid that is less than a total volumetric capacity of each well when said base is tilted or turned upside-down.

3. The container of claim 1, wherein all of said wells are of uniform shape and size.

4. The container of claim 1, wherein said wells are substantially semi-spherical in shape.

5. The container of claim 1, wherein said wells for retaining liquid retain a volume that is approximately  $1.7 \times 10^{-4}$  in<sup>3</sup> to  $3.6 \times 10^{-3}$  in<sup>3</sup>.

6. The container of claim 5, wherein said wells have a diameter of approximately  $\frac{3}{32}$  to  $\frac{3}{8}$  inch.

7. A thermoplastic container, comprising:

a bottom;

a pair of opposing side walls and a pair of opposing end walls, said side walls and said end walls extending upward from said bottom, said end walls extending between said side walls; and

a base rim encompassing an upper edge of said side walls and said end walls and extending laterally outwardly therefrom, said rim having an integrally formed outer flange with a pair of opposing anchoring portions, said outer flange forming at least one handle segment, each of said handle segments having a pair of generally parallel hinged portions and a graspable portion extending between said hinged portions, said hinged portions being rotatably connected to said respective anchoring portions for upward and downward swinging movements, said handle segments having means for releasably engaging said handle segments to each other, each of said hinged portions having at least one upwardly extending rib segment extending upwardly from an upper surface of the associated hinged portion, at least one downwardly extending rib segment extending downwardly from a lower surface of the associated hinged portion, and at least one integral hinge forming a definite bending point.

8. The container of claim 7, wherein each of said hinged portions has a plurality of upwardly extending rib segments extending upwardly from said upper surface of the associated hinged portion, and a plurality of downwardly extending rib segments extending downwardly from said lower surface of the associated hinged portion;

wherein consecutive ones of said upwardly extending rib segments are interconnected at integral hinges, consecutive ones of said downwardly extending rib segments are interconnected at integral hinges, and consecutive ones of said upwardly and downwardly extending rib segments are interconnected by integral hinges.

9. The container of claim 7, wherein said integral hinges between said consecutive upwardly extending rib segments are formed by integrally molded substantially V-shaped notches, and said integral hinges between said consecutive downwardly extending rib segments are formed by integrally molded substantially V-shaped notches.

10. The container of claim 7, wherein each of said hinged portions has a plurality of upwardly extending rib segments

extending upwardly from said upper surface of the associated hinged portion, and a plurality of downwardly extending rib segments extending downwardly from said lower surface of the associated hinged portion, said upwardly extending rib segments are proximally located to said respective anchoring portion relative to said downwardly extending rib segments when formed, said downwardly extending rib segments are distally located from said respective anchoring portion relative to said upwardly extending rib segments when formed.

11. The container of claim 10, wherein one of said upwardly extending rib segments is adjoined and rotatably hinged to said anchoring portion, said adjoining rib segment being longer than other ones of said upwardly and downwardly extending rib segments in said hinged portion.

12. The container of claim 11, wherein said upwardly extending rib segments located between said adjoining rib segment and said downwardly extending rib segments have approximately the same depth as and are shorter in length than said downwardly extending rib segments.

13. The container of claim 11, wherein the distance between said opposing end walls is approximately 8 inches, said adjoining rib is approximately  $\frac{3}{8}$  inch in length, said upwardly extending rib segment located between said adjoining rib segment and said downwardly extending rib segment is approximately  $\frac{1}{4}$  inch in length, and said downwardly extending rib segment is approximately  $\frac{1}{4}$  inch in length.

14. The container of claim 11, wherein the distance between said opposing end walls is approximately 12 inches, said adjoining rib is approximately  $\frac{1}{2}$  inch in length, said upwardly extending rib segment located between said adjoining rib segment and said downwardly extending rib segment is approximately  $\frac{3}{32}$  inch in length, and said downwardly extending rib segment is approximately  $\frac{3}{8}$  inch in length.

15. The container of claim 7, wherein said hinged portions of each of said handle segments are integrally interconnected with said respective graspable portion at corner flanges, said corner flanges having a reinforcing bead.

16. The container of claim 7, wherein each of said anchoring portions includes a upwardly extending reinforcing rib substantially parallel to said side walls of said base.

17. The container of claim 16, wherein said base rim further includes an upwardly protruding elongated rib, said container further including at least one cross-rib disposed between said elongated rib and said reinforcing rib.

18. The container of claim 17, wherein said cross-rib is substantially parallel to said base end walls.

19. The container of claim 7, wherein said means for releasably engaging said handle segments includes at least one male rib extending from one of said handle segments, and at least one depending female recess formed in the other of said handle segments.

20. The container of claim 19, wherein said male rib is substantially rectangular and includes a shoulder structure extending outwardly from opposite ends of said male rib, said female recess positioned and dimensioned to receive said cooperating male rib, said female recess having opposite ends, said opposite ends of said female recess having an inwardly extending shoulder structure adapted to mate with said outwardly extending shoulder structure of said male rib, said ends of said male rib and said ends of said female recess being constructed and arranged to deflect with respect to each other so that when said male rib is pressed into said female recess said shoulder structure on said male rib will snap into position beneath said shoulder structure in said

female recess and interlock therewith to latch said handle segments together.

21. The container of claim 7, wherein said bottom includes at least one elongated recess for substantially receiving a portion of said handle segments to facilitate stacking of said containers, said portion including said graspable portion.

22. The container of claim 7, wherein said container further includes a cover having a top, a pair of opposing cover side walls, a pair of opposing cover end walls, and a cover rim, said cover side walls and said cover end walls extending downward from said top, said cover end walls extending between said cover side walls, said cover rim encompassing a lower edge of said cover side walls and said cover end walls and extending laterally outwardly therefrom.

23. The container of claim 22, wherein said cover rim further includes a downwardly protruding rib, said base rim further includes an upwardly protruding elongated rib.

24. The container of claim 23 further including means for securing said cover to said base.

25. The container of claim 24, wherein said means for securing said cover to said base includes said downwardly protruding rib of said cover rim and said upwardly protruding elongated rib of said base rim, said downwardly protruding rib of said cover rim being adapted for complementary press-fittable engagement with said upwardly protruding elongated rib of said base rim.

26. The container of claim 24, wherein said means for securing said cover to said base includes at least one male rib and at least one corresponding female recess.

27. The container of claim 26, wherein said male rib and female recess are substantially cone-shaped.

28. The container of claim 26, wherein said male rib is substantially rectangular and includes a shoulder structure extending outwardly from opposite ends of said male rib, said female recess positioned and dimensioned to receive said cooperating male rib, said female recess having opposite ends, said opposite ends of said female recess having an inwardly extending shoulder structure adapted to mate with said outwardly extending shoulder structure of said male rib, said ends of said male rib and said ends of said female recess being constructed and arranged to deflect with respect to each other so that when said male rib is pressed into said female recess said shoulder structure on said male rib will snap into position beneath said shoulder structure in said female recess and interlock therewith to latch said cover and said base together.

29. The container of claim 23, wherein said upwardly protruding elongated rib of said base rim includes a plurality of base venting notches intermittently interrupting said upwardly protruding elongated rib of said base rim.

30. The container of claim 23, wherein said downwardly protruding rib of said cover rim includes a plurality of cover venting notches intermittently interrupting said downwardly protruding rib of said cover rim.

31. The container of claim 23, wherein said upwardly protruding elongated rib of said base rim includes a plurality of base venting notches intermittently interrupting said upwardly protruding elongated rib of said base rim, said downwardly protruding rib of said cover rim includes a plurality of cover venting notches intermittently interrupting said downwardly protruding rib of said cover rim.

32. The container of claim 31, wherein said base venting notches are aligned with said respective cover venting notches and form respective vent openings when said cover is secured atop said base.

33. The container of claim 22, wherein said cover includes a plurality of apertures substantially formed in said cover side walls and said cover end walls.

34. The container of claim 33, wherein each of said apertures has an area of approximately 0.25 in.<sup>2</sup>.

35. The container of claim 34, wherein the distance between said opposing cover end walls is approximately 8 inches, each of said cover end walls having two said apertures, each of said cover side walls having three said apertures.

36. The container of claim 34, wherein the distance between said opposing cover end walls is approximately 12 inches, each of said cover end walls having two said apertures, each of said cover side walls having five said apertures.

37. The container of claim 33, wherein said apertures are aligned with said vent openings.

38. The container of claim 22 further including means for stacking said containers.

39. The container of claim 38, wherein said means for stacking includes a recessed bottom portion depending from said bottom, and a recessed top portion depending from said top whereby a plurality of said containers when stacked on one another provide a stack interlock produced by said top portion dimensioned and positioned to receive said cooperating depending bottom portion of the adjacent container in the stack.

40. The container of claim 39, wherein said recessed bottom portion and said recessed top portion are bowed.

41. A thermoplastic container comprising:  
a base including a bottom, a pair of opposing base side walls, a pair of opposing base end walls, and a base rim, said base side walls and said base end walls extending upward from said bottom, said base end walls extending between said base side walls, said base rim encompassing an upper edge of said base side walls and said base end walls and extending laterally outwardly therefrom, said base rim having an upwardly protruding elongated rib with base venting notches intermittently interrupting said upwardly protruding rib; and  
a cover including a top, a pair of opposing cover side walls, a pair of opposing cover end walls, and a cover rim, said cover side walls and said cover end walls extending downward from said top, said cover end walls extending between said cover side walls, said cover rim encompassing a lower edge of said cover side walls and said cover end walls and extending laterally outwardly therefrom, said cover rim having a downwardly protruding rib.

42. The container of claim 41, wherein said downwardly protruding rim of said cover rim includes cover venting notches intermittently interrupting said downwardly protruding rib.

43. The container of claim 42, wherein said cover venting notches being aligned with said respective base venting notches and forming respective vent openings when said cover is secured atop said base.

44. The container of claim 41 further including means for securing said cover to said base.

45. The container of claim 44, wherein said means for securing said cover to said base includes said downwardly protruding rib of said cover rim and said upwardly protruding elongated rib of said base rim, said downwardly protruding rib of said cover rim being adapted for complementary press-fittable engagement with said upwardly protruding elongated rib of said base rim.

46. The container of claim 44, wherein said means for securing said cover to said base includes at least one male rib and at least one corresponding female recess.

47. The container of claim 46, wherein said male rib and female recess are substantially cone-shaped.

48. The container of claim 46, wherein said male rib is substantially rectangular and includes a shoulder structure extending outwardly from opposite ends of said male rib, said female recess positioned and dimensioned to receive said cooperating male rib, said female recess having opposite ends, said opposite ends of said female recess having an inwardly extending shoulder structure adapted to mate with said outwardly extending shoulder structure of said male rib, said ends of said male rib and said ends of said female recess being constructed and arranged to deflect with respect to each other so that when said male rib is pressed into said female recess said shoulder structure on said male rib will snap into position beneath said shoulder structure in said female recess and interlock therewith to latch said cover and said base together.

49. The container of claim 41, wherein said cover includes a plurality of apertures.

50. The container of claim 49, wherein said apertures are substantially formed in said side walls and said end walls of said cover.

51. The container of claim 50, wherein said apertures are aligned with said vent openings.

52. The container of claim 41, wherein said container includes means for stacking said containers.

53. The container of claim 52, wherein said means for stacking includes a recessed bottom portion depending from said bottom, and a recessed top portion depending from said top whereby a plurality of said containers when stacked on one another provide a stack interlock produced by said top portion dimensioned and positioned to receive said cooperating depending bottom portion of the adjacent container in the stack.

54. The container of claim 53, wherein said recessed bottom portion and said recessed top portion are bowed.

55. The container of claim 41, wherein said bottom includes at least one reinforcing rib.

56. A thermoplastic container comprising:

a base including a bottom, a pair of opposing base side walls, a pair of opposing base end walls, and a base rim, said base side walls and said base end walls extending upward from said bottom, said base end walls extending between said base side walls, said base rim encompassing an upper edge of said base side walls and said base end walls and extending laterally outwardly therefrom, said base rim having an upwardly protruding elongated rib; and

a cover including a top, a pair of opposing cover side walls, a pair of opposing cover end walls, and a cover rim, said cover side walls and said cover end walls extending downward from said top, said cover end walls extending between said cover side walls, said cover rim encompassing a lower edge of said cover side walls and said cover end walls and extending laterally outwardly therefrom, said cover rim having a downwardly protruding rib with cover venting notches intermittently interrupting said downwardly protruding rib.

57. The container of claim 56, wherein said upwardly protruding elongated rib of said base rim includes base venting notches intermittently interrupting said upwardly protruding rib.

58. The container of claim 56, wherein said cover venting notches being aligned with said respective base venting notches and forming respective vent openings when said cover is secured atop said base.

59. The container of claim 56 further including means for securing said cover to said base.

60. The container of claim 59, wherein said means for securing said cover to said base includes said downwardly protruding rib of said cover rim and said upwardly protruding elongated rib of said base rim, said downwardly protruding rib of said cover rim being adapted for complementary press-fittable engagement with said upwardly protruding elongated rib of said base rim.

61. The container of claim 59, wherein said means for securing said cover to said base includes at least one male rib and at least one corresponding female recess.

62. The container of claim 61, wherein said male rib is substantially rectangular and includes a shoulder structure extending outwardly from opposite ends of said male rib, said female recess positioned and dimensioned to receive said cooperating male rib, said female recess having opposite ends, said opposite ends of said female recess having an inwardly extending shoulder structure adapted to mate with said outwardly extending shoulder structure of said male rib, said ends of said male rib and said ends of said female recess being constructed and arranged to deflect with respect to each other so that when said male rib is pressed into said female recess said shoulder structure on said male rib will snap into position beneath said shoulder structure in said female recess and interlock therewith to latch said cover and said base together.

63. The container of claim 56, wherein said cover includes a plurality of apertures.

64. The container of claim 63, wherein said apertures are substantially formed in said side walls and said end walls of said cover.

65. The container of claim 64, wherein said apertures are aligned with said vent openings.

66. The container of claim 56, wherein said container includes means for stacking said containers.

67. The container of claim 66, wherein said means for stacking includes a recessed bottom portion depending from said bottom, and a recessed top portion depending from said top whereby a plurality of said containers when stacked on one another provide a stack interlock produced by said top portion dimensioned and positioned to receive said cooperating depending bottom portion of the adjacent container in the stack.

68. The container of claim 67, wherein said recessed bottom portion and said recessed top portion are bowed.

69. The container of claim 56, wherein said bottom includes at least one reinforcing rib.

70. A thermoplastic container comprising:

a base including a bottom, a pair of opposing base side walls, a pair of opposing base end walls, and a base rim, said base side walls and said base end walls extending upward from said bottom, said base end walls extending between said base side walls, said base rim encompassing an upper edge of said base side walls and said base end walls and extending laterally outwardly therefrom, said base rim having an upwardly protruding elongated rib, said rim having an integrally formed outer flange with a pair of opposing anchoring portions, each anchoring portion having a pair of ends, said outer flange defining a score forming at least one handle segment being rotatably connected to said respective ends of said anchoring portions at integral hinges, said elongated rib and said anchoring portion defining a middle flange portion therebetween, said score extending into said middle flange portion.

71. The container of claim 70, wherein said anchoring portion includes an upwardly extending reinforcing rib.

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72. The container of claim 70, wherein said middle flange portion includes at least one cross-rib disposed between said elongated rib and said anchoring portion.

73. The container of claim 72, wherein said cross-rib closest to said end of said anchoring portion is positioned a distance away from said end to form a recess. 5

74. The container of claim 73, wherein said recess is substantially U-shaped.

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75. The container of claim 73, wherein said score extends into said recess.

76. The container of claim 72, wherein said anchoring portion is substantially parallel to said side walls and said cross-rib is substantially parallel to said end walls.

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